



<https://youtu.be/u5FUhkpzv7Q>





“The best way to predict the future is to invent it.”

Alan Kay





What is the  
KCP&L Clean Charge Network?



# KCP&L Clean Charge Network

- Largest electric vehicle charging station installation by an electric utility in the United States
- Elevates the Kansas City metro to a top tier region for electric vehicles
  - Includes **1,001** 240-volt stations and **15** direct current fast-charging stations
  - Provides the capability to charge 2,000+ vehicles at once
  - Supports **10,000+** additional electric vehicles in the region
- Eliminates “range anxiety”



# Meet Your Level 2 Charging Station

- EV can be refueled in *2-8 hours*, depending on the vehicle battery size and charging capability
- LCD display instructs drivers while supporting dynamic updates of custom branded videos and advertisements
- Installed as a “nest” to keep the cost per installation at an optimal range (2 minimum for a nest)



# Meet Your Fast Charge Charging Station

- An EV can be refueled depending on the battery capacity, from 0% to 80% in roughly 20 minutes.
- Placed at retail establishments
- Charge all electric vehicles compliant with CHAdeMO charging system and Combined Charging System (CCS) standards . *(Support Nissan, BMW, VW, Fiat)*



\*Installation material cost is proprietary information



[https://www.youtube.com/watch?v=P74\\_CKm5-rM](https://www.youtube.com/watch?v=P74_CKm5-rM)



The KCP&L Clean Charge Network is a groundbreaking electric vehicle charging network of more than 1,000 charging stations across the region. It is the first and largest electric vehicle charging station installation by an electric utility in the United States.

Welcome to the KCP&L Clean Charge Network.

Let's Get Started

Email Address \*

☒ Make my email my username.

Password \*

Security Question \*

Required Fields\*

Verify Password \*

Security Answer \*

Choose your EVatar \*

Name your EVatar \*

Log In

Powered by



# Consistent, Cost-Effective, Convenient

- **Consistent** — can charge any electric vehicle (EV) using the same process
- **Convenient** — charging stations near where you live and work
- **Cost-Effective** — free charging for first two years — thanks to partnerships with host locations and the Nissan Motor Company





Why did KCP&L launch the Clean Charge Network?



# Why things are different today

Electric usage is down and the costs of federal and state mandated expenditures are up.

**Environmental and Renewable Mandates  
& Aging Grid: Costs** ↑

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**kWh's: Distributed Solar & Energy Efficiency** ↓  
**Electric Vehicles** ↑



# Smart and Strategic Uses for Electricity

- Electricity usage is going down, but the cost to maintain a reliable grid **continues to rise**
- Finding **new and strategic uses** for electricity helps keep rates down for everyone
- EV electricity usage is a **perfect fit** as owners often plug-in at off peak times
- Fully charged EVs also **feed electricity back** into the grid while they're plugged in





Why is the KCP&L Clean Charge Network great for the region?



# Beneficial Electrification

- EVs increase **electricity sales** during **off-peak times**, a double benefit:
  - Increased **electricity sales** help spread the costs of maintaining the grid over more kilowatt hours, helping keep rates competitive for everyone
  - **Off-peak usage** reduces the need for additional generation (like a new power plant) and grid upgrades to keep up with demand
- EVs need electricity and they need it at the right times... to everyone's benefit



# Environmental Benefits

- **Reduced ozone-reducing pollutants** from tailpipe emissions, the impact of which we'll study with MARC
- **Reduced carbon dioxide emissions**, which we'll study with EPRI and MARC to see how it might impact the Clean Power Plan in MO and KS
- Reduced tailpipe emissions for other **EPA critical pollutants**, which we'll also quantify with MARC



# Economic Development

- A forward-thinking community **attracts businesses and talent**, especially in competitive categories
- EV owners spending less on fuel and maintenance can **spend more elsewhere**, often locally
- **Potential growth** in the auto, EV, battery and charging industries, which we'll study with KCADC
- **Direct and indirect job creation** from charging station deployment, EV sales and servicing.



# Customer Programs

- The KCP&L Clean Charge Network provides **vital data** that helps us improve customer programs:
  - Enabling new **customer programs** for demand management, time of use incentives and vehicle-to-grid battery storage/discharge
  - Providing the ability to deploy **cost-effective demand side management programs** for customers
  - Quantifying the value of time of use rates for vehicle charging, especially in relationship to **wind resources**
- This pilot gives us information that will help make all our **sustainable efforts stronger**



# Cost and Installation Efficiency

- The network is electrical infrastructure — we know and understand it
- Central design and smooth processes mean consistency, efficiency and easier expansion
- Doing the work in large chunks brings down equipment and installation costs
- Charging station deployment can be factored into grid planning, reducing the cost of maintaining the grid





# Achievements



# Regulatory Front

- Kansas
  - Filed application for cost recovery and rate tariff 2/26
  - Order 9/15/16
- Missouri
  - Workshop 5/25/16



# Proposal

- Kansas
  - Host and driver payment options
  - \$/kWh rate
    - Level 2 – \$.1180
    - Level 3 – \$.1428
  - Session Fee
    - Up to \$6.00/hour
  - Recovery
    - Session fee used to pay down rate base



# \$kWh/Gas comparison

MPG	kWh charge	\$/kWh	Total Bill	Gallons	\$/gal	Total Bill
23.9	20	.1274	\$2.55	2.51	\$1.57*	\$3.94
23.9	20	.1274	\$2.55	2.51	\$3.00	\$7.53
30	20	.1274	\$2.55	2.2	\$1.57	\$3.45
30	20	.1274	\$2.55	2.2	\$3.00	\$6.60

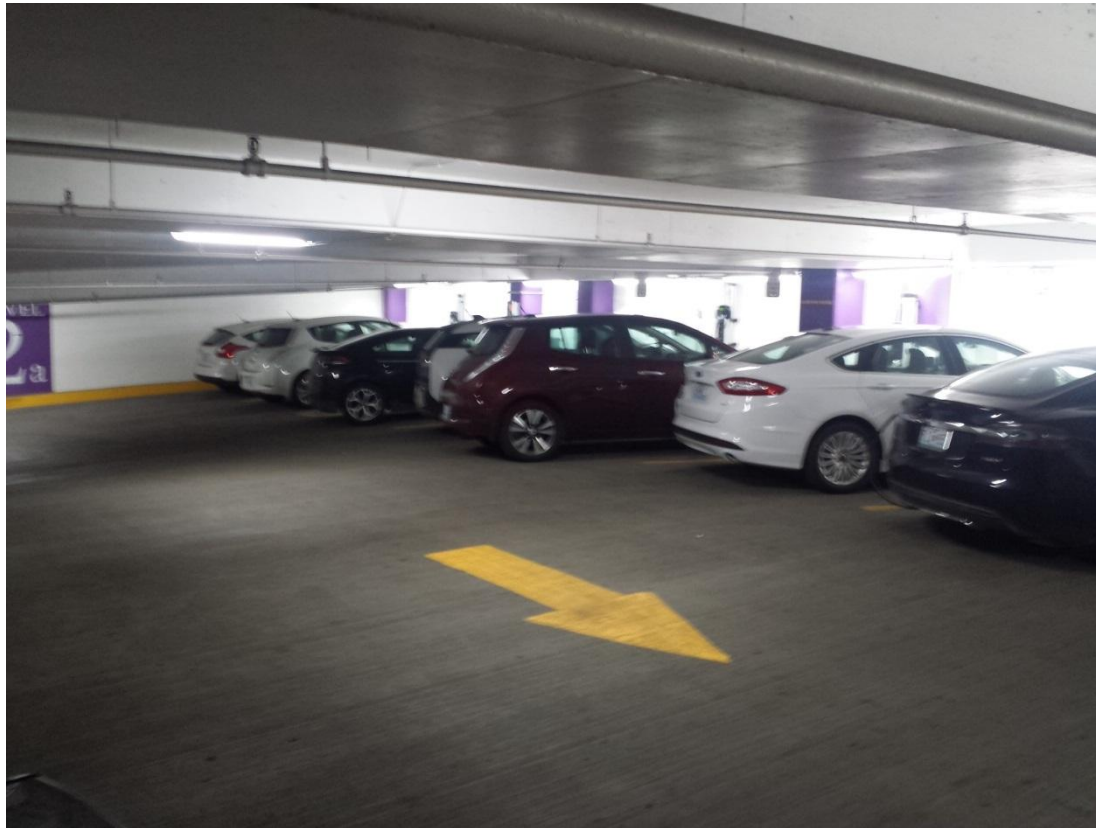
\*average gas price over last 10 years is \$3.00/gallon – all time low in 10 years was \$1.57.

\*\*Assumes Level 2 kWh proposed rate + 8% tax



# 1KC

- Up to 17 unique drivers a month
- More people charging every day than there are ports



# Unique Drivers – 523% Increase



# kWh usage - 405% Increase



# Sessions— 550% Increase





# How can you support the KCP&L Clean Charge Network?

<http://www.kcpl.com/~media/Files/About%20KCPL/CleanChargeFAQsforEVDiversFINAL.pdf>

